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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,148	10/11/2005	Matthias Ulbricht	ZHHZ 2 00024	1794

27885 7590 08/16/2007

FAY SHARPE LLP
1100 SUPERIOR AVENUE, SEVENTH FLOOR
CLEVELAND, OH 44114

EXAMINER	
CALLAWAY, JADE R	

ART UNIT	PAPER NUMBER
2809	

MAIL DATE	DELIVERY MODE
08/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/553,148	Applicant(s) ULBRICHT ET AL.
	Examiner Jade Callaway	Art Unit 2809

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 26 July 2007.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 20-38 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 20-38 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 11 October 2005 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 7/9/07.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group 1 in the reply filed on 7/26/07 is acknowledged. The traversal is on the ground(s) that Groups 1 and 2 contain additional common features such as: the deflection mirror means is located on a bearing mounted fitting and is provided with at least one compensation mass. The arrangement is such that the axis of rotation coincides with a principal axis of inertia of a combination including the deflection mirror means and the fitting. This is found persuasive because neither feature is shown or made obvious by prior art 220/0122234 A1.

The requirement is withdrawn.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

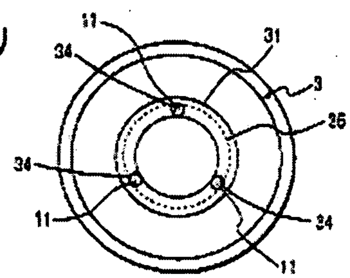
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 20, 23, 26-31, 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishizuka (5,933,267) in view of Pera (GB 2,120,804).

FIG. 4(A)

FIG. 4(B)



Consider claim 20, Ishizuka teaches (e.g. figures 4 A-B) a device for optically scanning a medium said device comprising: deflection mirror means including a deflection surface (8, polygon mirror) adapted to deflect light beams incident thereon and having a normal extending rectangularly to said deflection surface, said deflection mirror means being located in a bearing-mounted (3, bearing rotor) fitting and provided

with at least one compensation mass means (12 B, ring shaped positioning member) so that the axis of rotation coincides with a principle axis of inertia of a combination consisting of the deflection mirror means and the fitting [col. 1, lines 6-9, col. 7, lines 1-34].

However, Ishizuka does not teach drive means coupled to the deflection mirror means for rotating the deflection mirror means about an axis of rotation, the surface normal being angularly tilted relative to the axis of rotation.

In the same field of endeavor, Pera teaches drive means coupled to the deflection mirror means for rotating the deflection mirror means about an axis of rotation, the surface normal being angularly tilted relative to the axis of rotation. Pera teaches the benefit of using drive means coupled to the deflection mirror means for rotating the deflection mirror means about an axis of rotation, the surface normal being angularly tilted relative to the axis of rotation so that the laser beam at the outlet of the device describes a squashed annular trajectory substantially comparable to a straight line segment [abstract, pg. 2, lines 15-47].

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use drive means coupled to the deflection mirror means for rotating the deflection mirror means about an axis of rotation, the surface normal being angularly tilted relative to the axis of rotation, as taught by Pera, in the device of Ishizuka, so that the laser beam at the outlet of the device describes a squashed annular trajectory substantially comparable to a straight line segment.

Consider claim 23, Ishizuka teaches a light deflection device.

However, Ishizuka does not specifically teach that the light beams come from a laser light source.

In the same field of endeavor, Pera teaches light beams that come from a laser light source. Pera teaches the benefit of using a laser light source for its ability to be manufactured simply, reliably and economically [pg. 1, lines 49-54].

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a laser light source, as taught by Pera, in the device of Ishizuka, because of its ability to be manufactured simply, reliably, and economically.

Consider claim 26, Ishizuka teaches a rotational mirror.

However, Ishizuka does not teach a device wherein the angle between the axis of rotation and the mirror normal can be adjusted.

In the same field of endeavor, Pera teaches a device wherein the angle between the axis of rotation and the mirror normal can be adjusted. Pera teaches the benefit of using a device wherein the angle between the axis of rotation and the mirror normal can be adjusted so that the laser beam at the outlet of the device describes a squashed annular trajectory substantially comparable to a straight line segment [abstract, pg. 2, lines 15-47].

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a device wherein the angle between the axis of rotation and the mirror normal can be adjusted, as taught by Pera, in the device of Ishizuka, so that the laser beam at the outlet of the device describes a squashed annular trajectory substantially comparable to a straight line segment.

Consider claim 27, Ishizuka teaches a rotational mirror.

However, Ishizuka does not teach a device wherein a second drive unit is provided for adjusting the angle between the axis of rotation and the mirror normal.

In the same field of endeavor, Pera teaches a second drive unit (attachment unit) provided for adjusting the angle between the axis of rotation and the mirror normal. Pera teaches the benefit of using a second drive unit provided for adjusting the angle between the axis of rotation and the mirror normal so that the laser beam at the outlet of the device describes a squashed annular trajectory substantially comparable to a straight line segment [abstract, pg. 2, lines 15-47].

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a device wherein a second drive unit is provided for adjusting the angle between the axis of rotation and the mirror normal, as taught by Pera, in the device of Ishizuka, so that the laser beam at the outlet of the device describes a squashed annular trajectory substantially comparable to a straight line segment.

Consider claim 28, Ishizuka teaches a device wherein the position of the compensation mass means (12 B) relative to the deflection mirror means (8) can be adjusted [col. 7, lines 1-34].

Consider claim 29, Ishizuka teaches a device wherein the deflection mirror means (8) can be pivoted about a pivot axis perpendicular to the axis of rotation and wherein the compensation mass means (12B) is pivotable relative to the deflection mirror means about the pivot axis of the deflection mirror means [col. 7, lines 1-34].

Consider claim 30, Ishizuka teaches a device comprising a common drive unit (3, bearing rotor) for pivoting both said deflection mirror means and said compensation mass means about said common pivot axis [col. 7, lines 1-34].

Consider claim 31, Ishizuka teaches a device wherein the compensation mass means is a ring shaped element, which surrounds the deflection mirror means [col. 7, lines 1-34].

Consider claim 37, Ishizuka teaches a system for optically scanning a medium comprising a deflection mirror for deflecting light beams coming from said medium [Ishizuka, col.1, lines 6-9],

However, Ishizuka does not teach the deflection mirror means being coupled to a drive unit and rotatable about an axis of rotation, said mirror having a normal being tilted relative to the axis of rotation a scanning method wherein the angle of tilt being continuously changed during rotation of said mirror.

In the same field of endeavor, Pera teaches a deflection mirror means being coupled to a drive unit and rotatable about an axis of rotation, said mirror having a normal being tilted relative to the axis of rotation a scanning method wherein the angle of tilt being continuously changed during rotation of said mirror. Pera teaches the benefit of using a deflection mirror means being coupled to a drive unit and rotatable about an axis of rotation, said mirror having a normal being tilted relative to the axis of rotation a scanning method wherein the angle of tilt being continuously changed during rotation of said mirror so that the laser beam at the outlet of the device describes a

squashed annular trajectory substantially comparable to a straight line segment [abstract, pg. 2, lines 15-47].

Thus it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a deflection mirror means being coupled to a drive unit and rotatable about an axis of rotation, said mirror having a normal being tilted relative to the axis of rotation a scanning method wherein the angle of tilt being continuously changed during rotation of said mirror, as taught by Pera, in the device of Ishizuka, so that the laser beam at the outlet of the device describes a squashed annular trajectory substantially comparable to a straight line segment.

6. Claims 21-22, 24-25, 32-36, 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishizuka (5,933,267) in view of Pera (GB 2,120,804 A) as applied to claim 20 above, and further in view of Kalayeh et al. (6,822,742).

Consider claim 21, the previous combination teaches a device for scanning.

However, the previous combination does not teach that the scanning medium is selected from the group consisting of a fluid medium, three dimensional objects and surfaces.

In the same field of endeavor, Kalayeh et al. teach a device for scanning a medium that is selected from the group consisting of a fluid medium, three dimensional objects and surfaces. Kalayeh et al. teach the benefit of a scanning medium that is selected from the group consisting of a fluid medium, three dimensional objects and surfaces in order to detect leaks from a natural gas or oil pipeline [col. 6, col. 11].

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a scanning medium selected from the group of a fluid medium, three dimensional objects and surfaces, as taught by Kalayeh et al., in the device of the previous combination, in order to detect leaks from a natural gas or oil pipeline.

Consider claim 22, the previous combination teaches means for deflecting the light beams to a receiving system (e.g. printer, Ishizuka)

However, the previous combination does not teach that the receiving system comprises a telescope and detector.

In the same field of endeavor, Kalayeh et al. teach a receiving system comprising a telescope (560) and a detector (590). Kalayeh et al. teach the benefit of using a receiving system comprising a telescope and a detector to detect trace fluids for gas and pipeline leaks [col. 10, lines 47-67, col. 11, lines 1-5].

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a receiving system comprising a telescope and a detector, as taught by Kalayeh et al., in the device of the previous combination to detect trace fluids for gas and pipeline leaks.

Consider claim 24, the previous combination teaches a light scanning device.

However, the previous combination does not teach that the incident light is sunlight.

In the same field of endeavor, Kalayeh et al. teach a device wherein the incident light is sunlight (backsplatter). Kalayeh et al. teach the benefit of using a device

wherein the incident light is sunlight to detect trace fluids for gas and pipeline leaks [col. 10, lines 47-67, col. 11, lines 1-5].

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a device wherein the incident light is sunlight, as taught by Kalayeh et al., in the device of the previous combination, to detect trace fluids for gas and pipeline leaks.

Consider claim 25, the previous combination teaches a light scanning device.

However, the previous combination does not teach that the incident light is emitted by surfaces.

In the same field of endeavor, Kalayeh et al. teach a device wherein the incident light is emitted by surfaces (target area). Kalayeh et al. teach the benefit of using a device wherein he incident light is emitted by surfaces so that trace fluids of gas and pipeline leaks can be detected [col. 10, lines 47-67, col. 11, lines 1-5].

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a device wherein the incident light is emitted by surfaces, as taught by Kalayeh et al., in the device of the previous combination so that trace fluids of gas and pipeline leaks can be detected.

Consider claim 32, the previous combination teaches deflection mirror means including a deflection surface adapted to deflect light beams to be sensed said deflection surface having a normal extending rectangularly thereto [Ishizuka, col. 1, lines 6-9], drive means coupled to the deflection mirror means for rotating the deflection mirror means about an axis of rotation, said deflection surface having a surface normal

being angularly tilted relative to the axis of rotation [Pera, pg. 2, lines 15-37], said deflection mirror means (8) being located in a bearing-mounted (3) fitting and provided with at lease one compensation mass means (12B) so that the axis of rotation coincides with a principle axis of inertia of a combination consisting of the deflection mirror means and the fitting [Ishizuka, col. 7, lines 1-34].

However, the previous combination does not teach a system for optically sensing gases, in particular gaseous hydrocarbons, wherein the light beams are emitted from gases to be sensed.

In the same field of endeavor, Kalayeh et al. teach a system for optically sensing gases, in particular gaseous hydrocarbons, wherein the light beams are emitted from gases (fluids) to be sensed. Kalayeh et al. teach the benefit of using a system for optically sensing gases, in particular gaseous hydrocarbons, wherein the light beams are emitted from gases so that trace fluids of gas and pipeline leaks can be detected [col. 5, lines 39-54, col. 10, lines 47-67, col. 11, lines 1-5].

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a system for optically sensing gases in particular gaseous hydrocarbons, wherein the light beams are emitted from gases, as taught by Kalayeh et al., in the device of the previous combination, so that trace fluids of gas and pipeline leaks can be detected.

Consider claim 33, the previous combination teaches a scanning system.

However, the previous combination does not teach a system that comprises navigation means and is provided for installation in an aircraft.

In the same field of endeavor, Kalayeh et al. teach a system that comprises navigation means and is provided for installation in an aircraft. Kalayeh et al. teach the benefit of using a system that comprises navigation means and is provided for installation in an aircraft so that trace fluids of gas and pipeline leaks can be detected from an aircraft flying over an area [col. 6, lines 47-67].

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a system that comprises navigation means and is provided for installation in an aircraft, as taught by Kalayeh et al., in the device of the previous combination, so that trace fluids of gas and pipeline leaks can be detected from an aircraft flying over an area.

Consider claim 34, the previous combination teaches a scanning system comprising a deflection mirror (8) for deflecting light beams, said deflection mirror coupled to a drive unit (3) for rotating the mirror about an axis of rotation [Ishizuka, col. 1, lines 6-9], said deflection mirror having a deflection surface comprising a surface normal that is tilted relative to the axis of rotation of said deflection mirror [Pera, pg. 2, lines 15-47], a method for optically scanning a medium while said mirror is rotated about said axis of rotation, and wherein at least one compensation mass (12 B) is associated to said deflection mirror in such a way that the axis of rotation coincides with a principal axis of inertia of a combination consisting of the deflection mirror and a fitting supporting said deflection mirror.

However the previous combination does not teach a system that is guided over the medium for scanning.

In the same field of endeavor, Kalayeh et al. teach a system that is guided over the medium for scanning. Kalayeh et al. teach the benefit of using a system that is guided over the medium so that trace fluids of gas and pipeline leaks can be detected from an aircraft flying over an area [col. 6, lines 47-67].

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a system that is guided over the medium, as taught by Kalayeh et al., in the device of the previous combination, so that trace fluids of gas and pipeline leaks can be detected from an aircraft flying over an area.

Consider claim 35, the previous combination teaches an optical scanning system.

However, the previous combination does not teach a method for the remote optical sensing of gases, in particular hydrocarbons.

In the same field of endeavor, Kalayeh et al. teach a method for the remote optical sensing of gases, in particular hydrocarbons. Kalayeh et al. teach the benefit of using a method for the remote optical sensing of gases, in particular hydrocarbons so that trace fluids of gas and pipeline leaks can be detected from an aircraft flying over an area [col. 5, lines 37-54, col. 6, lines 47-67].

Thus it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a method for the remote optical sensing of gases, in particular hydrocarbons, as taught by Kalayeh et al., in the device of the previous combination, so that trace fluids of gas and pipeline leaks can be detected from an aircraft flying over an area.

Consider claim 36, the previous combination does not teach a method for monitoring buried pipelines using an aircraft.

In the same field of endeavor, Kalayeh et al. teach a method for monitoring buried pipelines using an aircraft. Kalayeh et al. teach the benefit of using a method for monitoring buried pipelines using an aircraft so that trace fluids of gas and pipeline leaks can be detected remotely [col. 6, lines 47-67].

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a method for monitoring buried pipelines using an aircraft, as taught by Kalayeh et al., in the device of the previous combination, so that trace fluids of gas and pipeline leaks can be detected remotely.

Consider claim 37, the previous combination does not teach a method for the remote optical sensing of gases, in particular hydrocarbons.

In the same field of endeavor, Kalayeh et al. teach a method for the remote optical sensing of gases, in particular hydrocarbons. Kalayeh et al. teach the benefit of using a method for the remote optical sensing of gases, in particular hydrocarbons so that trace fluids of gas and pipeline leaks can be detected from an aircraft flying over an area [col. 5, lines 37-54, col. 6, lines 47-67].

Thus it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a method for the remote optical sensing of gases, in particular hydrocarbons, as taught by Kalayeh et al., in the device of the previous combination, so that trace fluids of gas and pipeline leaks can be detected from an aircraft flying over an area.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nagasaka et al. (6,400,488) teach a light beam scanner. Bar et al. (2001/0008469) teach a deformable mirror, in particular for a laser beam material machining apparatus. Metlitsky et al. (4,871,904) teach a multidirectional optical scanner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jade Callaway whose telephone number is 571-272-8199. The examiner can normally be reached on Monday to Friday 7:30 am -5 pm est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Ortiz can be reached on 571-272-1206. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JRC

LEONARDO ANDUJAR
PRIMARY EXAMINER